

SUPPORT FOR THE AMENDMENTS

Claim 1 has been amended.

Support for the amendment of Claim 1 is provided by, at least, page 5, lines 21-27 of the specification.

No new matter has been added by the present amendments.

REMARKS

Claims 1-10 are pending in the present application.

The rejection of Claims 1-10 under 35 U.S.C. §102(b) over Auschra et al (US 2004/0143032) in view of Allard et al (US 5,756,110) is respectfully traversed.

Claim 1 of the present application recites:

A metal oxide complex powder obtained by polymerizing a polymerizable and unsaturated group-containing monomer via a polymerization initiation group introduced and immobilized onto the surface of at least one metal oxide selected from the group consisting of zinc oxide, titanium oxide and cerium oxide, wherein the primary particle diameter of said metal oxide complex powder is 1 μm or less.

Thus, the claimed invention relates to a metal oxide complex powder where the a “polymerizable and unsaturated group-containing monomer” is surface grafted (see description on page 3, line 20 to page 8, line 26) onto the surface of a metal oxide.

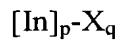
Contrary to the Examiner’s allegations, Auschra et al do not disclose or suggest a metal oxide complex powder as claimed, much less one meeting the size limitations. As such, Applicants disagree that the claimed invention would be obvious in view of Auschra et al and Allard et al for the following reasons.

As described throughout Auschra et al, this reference relates to a *composition* containing *two* independent components: (a) 0.1-99.9% by weight of a block copolymer of the formula $(\text{In})_p - [\text{A}_x - \text{B}_y]_q - \text{X}_q$ and (b) 0.1-99.9% by weight of a dispersible inorganic or organic pigment particles (see paragraphs [0011]-[0024] and paragraphs [0089]-[0095]). Component (b) is described in paragraphs [0084]-[0086] as including inorganic pigments including titanium(IV) oxide and zinc oxide (note: cerium oxide is not disclosed). These paragraphs do not disclose the metal oxide powder as being surface grafted with a polymer of any type.

The Examiner points to paragraph [0096] as disclosing the “preparation of the pigment composition by polymerization of inorganic or organic pigment particles with a block copolymer in the presence of a polymerization initiator capable of initiating the radical polymerization of ethylenically unsaturated monomers in the presence of a halogenated catalyst activating controlled atomic transfer radical polymerization.” Even if this characterization by the Examiner were correct it does not show surface grafting of a polymer onto the surface of the metal oxide is disclosed by Auschra et al. In fact, this statement by the Examiner actually says that such a method is not disclosed and acknowledges that what is prepared is a pigment composition (i.e., one in which the pigment is independent from the polymer).

Indeed, this is specifically spelled out in paragraphs [0096]-[0097] of Auschra et al, which states in part:

[0096] Another embodiment of the invention relates to a process for preparing the above-mentioned composition containing components a) and b)... which comprises copolymerizing by atom transfer radical polymerization (ATRP) fragments A and B in the presence of the polymerization initiator:



[0097] wherein In, p and q are as defined above, and X represents Halogen and a catalytically effective amount of a catalyst capable of activating controlled atomic transfer radical polymerization (ATRP), replacing halogen X with a different polymer chain terminal group X' and adding dispersible pigment particles and optionally binder materials, fillers or other conventional additives. (*emphasis added*)

In other words, paragraphs [0096]-[0097] of Auschra et al disclose first producing a copolymer by ATRP of monomer fragments A and B. After ATRP, dispersible pigment particles are added to the copolymer to form a composition (i.e., mixture), not a metal oxide complex powder as claimed.

Moreover, Auschra et al also fail to disclose or suggest the further addition of a polymerization inhibitor. Accordingly, when this deficiency is taken together with the foregoing, it is not possible to obtain a metal oxide complex powder product in which a monomer has been graft-polymerized on the surface of a metal oxide.

Allard et al is cited as disclosing nanopigments of titanium dioxide, zinc oxide, and cerium oxides for use in cosmetics. However, Allard et al fails to compensate for the deficiencies discussed above with respect to Auschra et al.

For the reasons given above, the claimed invention of Claim 1, or Claims 2-10 which depend thereon, is not obvious in view of the combined disclosures of Auschra et al and Allard et al.

Withdrawal of this ground of rejection is requested.

Applicants submit that the present application is now in condition for allowance. Early notification of such action is earnestly solicited.

Respectfully submitted,

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